UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/672,282	09/25/2003	Mary Lou Guerinot	DCI-111	8165

959 7590 02/10/2006

LAHIVE & COCKFIELD, LLP.
28 STATE STREET
BOSTON, MA 02109

EXAMINER	
IBRAHIM, MEDINA AHMED	
ART UNIT	**PAPER NUMBER**
1638	

DATE MAILED: 02/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/672,282	GUERINOT ET AL.	
	Examiner	Art Unit	
	Medina A. Ibrahim	1638	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *1* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 September 2003*.

2a)☐ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-26* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-6, and 25, drawn to an isolated nucleic acid, a vector and host cell transformed with said nucleic acid, and methods of using said nucleic acid and said transgenic plant, classified in class 800, subclass 278, for example.

II. Claims 7-9, 11-19 and 26, drawn to an isolated polypeptide, transgenic plant comprising said polypeptide, and methods for using said polypeptide or said transgenic plants classified in class 530, subclass 370, for example.

III. Claims 20-24, drawn to a methods for treating meta-deficiency disorder using composition comprising transgenic plant expressing isolated FRD3 polypeptide therapeutically classified in class 514, subclass 2, for example.

IV. Claim 10, drawn to an antibody, classified in class 530, subclass 387.1, for example.

For the invention of Group I, Applicant is also required to elect one nucleotide sequence from SEQ ID NO: 1-2, 4-5, 7-8, and 20. For the invention of Group II, Applicant is also required to elect one polypeptide sequence from SEQ ID NO: 3, 6, and 9. Applicant is required to elect a single sequence for examination on the merit. This requirement is not to be construed as a requirement for an election of species, since

each nucleic acid is not a member of single genus invention, but constitute an independent and patentably distinct invention. Different sequences have different level of effects. The sequences are thus deemed to normally constitute independent and distinct inventions within the meaning of 35 USC 121, absent evidence to the contrary. Each sequence requires an independent search of the sequence databases. Searching all these the sequences in a single application would create search burden..

Inventions I and II are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). The instant specification does not disclose that the nucleic acids and the method for using said nucleic acid of Group II are useable together with the isolated polypeptide and the method of using the polypeptide of Group II. The method of Group I requires isolated nucleic acid and expression vector which are not necessarily required by the method of Group II. Therefore, the resultant transgenic plants will also be different. Therefore, searching the inventions of Groups I and II would impose a serious search burden. Therefore, the inventions of Groups I and II are patentably distinct.

In addition, the polypeptide of Group II and the polynucleotide of Group I are patentably distinct inventions as they are directed to a divergent products having different structure, function and effects. Polypeptides are composed of amino acids, while nucleic acids are composed of purine and pyrimidine units; any relationship between polynucleotide and polypeptide is dependent upon the information provided by the polynucleotide sequence open reading frame as it corresponds to the primary amino

acid sequence of the encoded polypeptide. In the present claims, the polynucleotide sequences of Group I does not necessarily encode all the polypeptides of Group II, for example the polypeptide of claim 9 which comprises heterologous amino acid sequences. A search of the polynucleotide of claim 1 would not likely to result in relevant art with respect to all the polypeptides of Group II including the polypeptide of claim 9. For these reasons, searching the inventions of Groups I and II together would present a serious search burden.

Inventions I, II, III are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). The instant specification does not disclose that these methods would be used together. The method of producing transgenic plant with isolated nucleic acid (group I), the method of producing transgenic plant with isolated polypeptide (group II), and the method of treating iron deficiency disorder (group III) are all unrelated as they comprise distinct steps and utilize different products which demonstrates that each method has a different mode of operation. Each invention performs this function using a structurally and functionally divergent material. Moreover, the methodology and materials necessary for treating iron deficiency disorder differ significantly for each of the materials. Therefore, each method is divergent in materials and steps. For these reasons the Inventions I, II, and III are patentably distinct.

Furthermore, the distinct steps and products require separate and distinct searches. The inventions of Groups I, II, and III have a separate status in the art as

shown by their different classifications. As such, it would be burdensome to search the inventions of Groups I, II, and III together.

Inventions I and IV are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). The instant specification does not disclose that the antibody of Group IV is used or otherwise involved in the method of Group I. Therefore, the inventions of Groups I and III are patentably distinct.

Inventions II and IV are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). The instant specification does not disclose that the antibody of Group IV is used or otherwise involved in the method of Group II. Therefore, the inventions of Groups II and IV are patentably distinct.

The polypeptide of Group II and the antibody of Group IV are patentably distinct for the following reasons: While the inventions of Group II and IV are both polypeptides, in this instant the polypeptide of Group II is a single chain molecule that functions as an enzyme, whereas the polypeptide of Group V encompasses antibodies including IgG which comprises 2 heavy and 2 light chains containing constant and variable regions, and including framework regions which act as a scaffold for the 6 complementarity determining regions (CDRs) that function to bind an epitope. Thus, the polypeptide of Group II and the antibody of Group IV are structurally distinct molecules; any

relationship between a polypeptide of Group III and an antibody of Group IV is dependent upon the correlation between the scope of the polypeptide that the antibody binds and the scope of the antibodies that would be generated upon immunization with the polypeptide. Furthermore, searching the inventions of Group II and Group IV would impose a serious search burden. The inventions have a separate status in the art as shown by their different classifications. A polypeptide and an antibody which binds to the polypeptide require different searches. An amino acid sequence search of the full-length protein is necessary for a determination of novelty and unobviousness of the protein. However, such a search is not required to identify the antibodies of Group IV Furthermore, antibodies, which bind to an epitope of a polypeptide of Group II, may be known even if a polypeptide of Group II is novel. In addition, the technical literature search for the polypeptide of Group II and the antibody of Group IV are not coextensive, e.g., antibodies may be characterized in the technical literature prior to discovery of or sequence of their binding target. Therefore, inventions of Groups II and IV are patentably distinct.

Because these inventions are distinct for the reasons set forth above and have acquired a separate status in the art as shown by their different classifications and their recognized divergent subject matter and because the literature search required for the groups is not coextensive, restriction for examination purposes as indicated is proper.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Medina A. Ibrahim whose telephone number is (571) 272-0797. The Examiner can normally be reached Monday -Thursday from 8:00AM to 5:30PM and every other Friday from 9:00AM to 5:00 PM. Before and after final responses should be directed to fax nos. (703) 872-9306 and (703) 872-9307, respectively.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Anne Marie Grunberg, can be reached at (571) 272-0795.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

2/6/06

MEDINA A. IBRAHIM
PATENT EXAMINER

Medina A. Ibrahim